

CLAIMS

1. A circuit board device for an information apparatus comprising:

a base board having mounted thereupon a plurality of
5 electronic components; and

a multilayer module board mounted at one surface of the base board and having mounted thereupon a plurality of electronic components including at least a CPU and a memory, wherein:

10 the multilayer module board is a multilayered board smaller in size than the base board, and the plurality of electronic components are wired to one another through a wiring pattern at an inner layer of the multilayer board.

2. A circuit board device for an information
15 apparatus according to claim 1, wherein:

the multilayer module board is connected to the base board by soldering a connector terminal disposed at a peripheral edge thereof to a junction portion formed on the base board.

20 3. A circuit board device for an information apparatus according to claim 2, wherein:

an electronic component is mounted at another surface of the multilayer module board, separated from the electronic components mounted at one surface of the multilayer module

board, by utilizing a space formed by the connector terminal between the multilayer module board and the base board.

4. A circuit board device for an information apparatus according to any of claims 1 through 3, wherein:

5 the electronic components mounted at the base board are low-frequency electronic components and the electronic components mounted at the multilayer module board are high-frequency electronic components.

5. A circuit board device for an information apparatus according to any of claims 1 through 4, wherein:

10 the high-frequency electronic circuits include at least a graphics circuit, in addition to the CPU and the memory.

6. A circuit board device for an information apparatus according to claim 4, wherein:

15 the low-frequency electronic circuits include at least a power circuit, a gyro and a GPS circuit.

7. A navigation system comprising a circuit board device according to any of claims 1 through 6.

20 8. A multilayer module board, comprising:

a plurality of high-frequency electronic components including a CPU and a memory mounted at, at least, one surface thereof, wherein:

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the plurality of high-frequency electronic components are connected with one another through a wiring pattern formed at an inner layer.

9. A multilayer module board according to claim 8,
5 assuming an overall shape of a rectangle and having connector terminals provided as separate members each soldered onto one of four peripheral edges thereof.

10. A multilayer module board according to claim 9, wherein:

10 the four connector terminals each include a narrow, elongated base portion constituted of resin and a plurality of pins fixed to the base portion; and

after the four connector terminals are each carried with the base portion attached to a transfer adapter, the four
15 connector terminals are connected through soldering onto a rear surface of the board while attached to the transfer adapter.

11. A multilayer module board according to claim 9, wherein:

20 the four connector terminals each include;
a narrow, elongated base portion constituted of resin;
a plurality of pins fixed to the base portion;
aligning pins projecting at both ends of the base
portion to be used when soldering the connector terminal onto
25 a rear surface of the board; and

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inclined surfaces for position control formed at both ends of the base portion to be used when soldering the connector terminal;

a pair of positioning holes at which the aligning pins
5 are loosely fitted are formed at each of four corners of the board; and

positions of the connector terminals are controlled when soldering the connector terminals as the inclined surfaces for position control at adjacent connector
10 terminals come into contact with each other while the positioning pins are loosely fitted at the positioning holes.

12. A circuit board for a navigation system achieved by mounting a module board according to any of claims 1 through 11 at a base board according to any of claims 1 through
15 11, wherein:

the module board is one of at least a high-speed module board, an advanced function module board, a low-end module board and a multimedia module board having a function for reproducing various types of data such as music and images
20 as well as a navigation function; and

the base board is used commonly in conjunction with the plurality of module boards.

13. A circuit board for a navigation system according to claim 12, wherein:

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the high-speed module board is a circuit board for a high-grade navigation system that operates at higher speed than a navigation system conforming to low-end specifications;

- 5 the advanced function module board is a circuit board for a high-grade navigation system having more functions than a navigation system conforming to low-end specifications; and

10 the low-end module board is a circuit board for a less expensive navigation system conforming to lower-end specifications rather than the high-grade navigation system.

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